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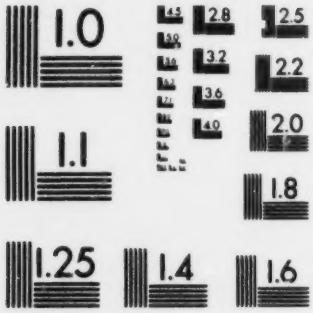

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

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February 16, 1984

REQ. NO. 3-9210

DSS Contract No. OSQ83-00235
Air Void Analysis of Concrete Specimens.

Final Report

Specimen	Air Content %	Specific Surface mm^{-1}	Spacing Factor mm	Voids per mm.
SF13A	7.3	24.3	0.095	0.442
SF13B	7.5	22.8	0.113	0.426
SF15A	6.8	22.0	0.126	0.375
SF15B	7.0	16.7	0.169	0.290
SF16B	8.0	19.0	0.111	0.381
SF16B	7.1	24.7	0.114	0.435
SF17A	5.8	32.6	0.091	0.473
SF17B	6.8	30.7	0.128	0.520
SF19A	7.5	28.6	0.109	0.534
SF19B	7.6	24.5	0.131	0.466
SF20A	7.6	22.7	0.138	0.433
SF20B	7.3	29.4	0.134	0.534
SF22A	4.7	8.9	0.612	0.103
SF22B	3.1	11.6	0.526	0.091

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MICROMEDIA

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Date: FEB 16, 1984
File No.: D.S.S./2
Report No.: 1

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF13A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1909

Total number of stops observed..... 1524

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.3	7.3	7.3
Specific Surface (mm^{-1})	24.3	24.3	24.3
Spacing Factor (mm)	0.147	0.170	0.185

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.3

Specific Surface (mm^{-1})..... 24.3

Spacing Factor (mm)..... 0.095

Air/Paste Ratio 0.44

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File No.: D.S.S./2
Report No.: 2

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF13B

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 2026

Total number of stops observed..... 1618

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.5	7.5	7.5
Specific Surface (mm^{-1})	22.8	22.8	22.8
Spacing Factor (mm)	0.152	0.176	0.194

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.5

Specific Surface (mm^{-1})..... 22.8

Spacing Factor (mm)..... 0.113

Air/Paste Ratio 0.39

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Date: FEB 16, 1984
File No.: D.S.S./2
Report No.: 3

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF15A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1969

Total number of stops observed..... 1570

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	6.8	6.8	6.8
Specific Surface (mm^{-1})	22.0	22.0	22.0
Spacing Factor (mm)	0.173	0.198	0.210

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 6.8

Specific Surface (mm^{-1})..... 22.0

Spacing Factor (mm)..... 0.126

Air/Paste Ratio 0.36

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File No.: D.S.S./2
Report No.: 4

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF15B

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1905

Total number of stops observed..... 1520

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.0	7.0	7.0
Specific Surface (mm^{-1})	16.7	16.7	16.7
Spacing Factor (mm)	0.224	0.258	0.275

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.0

Specific Surface (mm^{-1})..... 16.7

Spacing Factor (mm)..... 0.169

Air/Paste Ratio 0.36

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Report No.: 5

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF16A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1929

Total number of stops observed..... 1539

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	8.0	8.0	8.0
Specific Surface (mm^{-1})	19.0	19.0	19.0
Spacing Factor (mm)	0.171	0.197	0.223

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 8.0

Specific Surface (mm^{-1})..... 19.0

Spacing Factor (mm)..... 0.111

Air/Paste Ratio 0.47

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Report No.: 6

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF16B

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1952

Total number of stops observed..... 1557

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.1	7.1	7.1
Specific Surface (mm^{-1})	24.7	24.7	24.7
Spacing Factor (mm)	0.149	0.172	0.185

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.1

Specific Surface (mm^{-1})..... 24.7

Spacing Factor (mm)..... 0.114

Air/Paste Ratio 0.36

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File No.: D.S.S./2
Report No.: 7

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF17A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1899

Total number of stops observed..... 1515

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	5.8	5.8	5.8
Specific Surface (mm^{-1})	32.6	32.6	32.6
Spacing Factor (mm)	0.135	0.144	0.153

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 5.8

Specific Surface (mm^{-1})..... 32.6

Spacing Factor (mm)..... 0.091

Air/Paste Ratio 0.34

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Report No.: 8

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF17B

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1939

Total number of stops observed..... 1548

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	6.8	6.8	6.8
Specific Surface (mm^{-1})	30.7	30.7	30.7
Spacing Factor (mm)	0.125	0.143	0.151

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 6.8

Specific Surface (mm^{-1})..... 30.7

Spacing Factor (mm)..... 0.128

Air/Paste Ratio 0.26

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File No.: D.S.S./2
Report No.: 9

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF19A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 2131

Total number of stops observed..... 1698

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.5	7.5	7.5
Specific Surface (mm^{-1})	28.6	28.6	28.6
Spacing Factor (mm)	0.122	0.140	0.155

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.5

Specific Surface (mm^{-1})..... 28.6

Spacing Factor (mm)..... 0.109

Air/Paste Ratio 0.32

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REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF19P

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 2127

Total number of stops observed..... 1695

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.6	7.6	7.6
Specific Surface (mm^{-1})	24.5	24.5	24.5
Spacing Factor (mm)	0.140	0.161	0.180

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.6

Specific Surface (mm^{-1})..... 24.5

Spacing Factor (mm)..... 0.131

Air/Paste Ratio 0.31

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REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF20A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1956

Total number of stops observed..... 1560

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.6	7.6	7.6
Specific Surface (mm^{-1})	22.7	22.7	22.7
Spacing Factor (mm)	0.150	0.173	0.194

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.6

Specific Surface (mm^{-1})..... 22.7

Spacing Factor (mm)..... 0.138

Air/Paste Ratio 0.32

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File No.: D.S.S./2
Report No.: 12

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF20B

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1929

Total number of stops observed..... 1539

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	7.3	7.3	7.3
Specific Surface (mm^{-1})	29.4	29.4	29.4
Spacing Factor (mm)	0.122	0.140	0.153

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 7.3

Specific Surface (mm^{-1})..... 29.4

Spacing Factor (mm)..... 0.134

Air/Paste Ratio 0.25

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Report No.: 13

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF22A

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1934

Total number of stops observed..... 1544

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	4.7	4.7	4.7
Specific Surface (mm^{-1})	8.9	8.9	8.9
Spacing Factor (mm)	0.549	0.586	0.620

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 4.7

Specific Surface (mm^{-1})..... 8.9

Spacing Factor (mm)..... 0.612

Air/Paste Ratio 0.14

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File No.: D.S.S./2
Report No.: 14

REPORT OF TEST

MICROSCOPICAL DETERMINATION OF AIR-VOID CONTENT AND PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE USING THE MODIFIED POINT-COUNT METHOD, ASTM: C457-71

Sample identification: SF22B

Orientation of measured surface: ALONG CORE LENGTH

Total length of traverse (mm)..... 1930

Total number of stops observed..... 1540

PARAMETERS OF AIR-VOID SYSTEM BASED ON ASSUMED CONCRETE DESIGN STRENGTHS AND ASSUMED CONCRETE PASTE CONTENTS:

Design strength (psi)	3,000	4,000	5,000
Paste content (%)	26	30	34
Air-Void Content (%)	3.1	3.1	3.1
Specific Surface (mm^{-1})	11.6	11.6	11.6
Spacing Factor (mm)	0.502	0.536	0.567

PARAMETERS OF AIR-VOID SYSTEM BASED ON PASTE CONTENT DETERMINED BY MICROSCOPIC EXAMINATION OF THE CONCRETE SPECIMEN

Air-Void Content (%)..... 3.1

Specific Surface (mm^{-1})..... 11.6

Spacing Factor (mm)..... 0.526

Air/Paste Ratio 0.11

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